

DATE OF TALK: June 27, 2013

TITLE: First Evidence of High-Energy Extraterrestrial Neutrinos at IceCube

ABSTRACT:

The spectrum of cosmic rays includes the most energetic particles ever observed. The mechanism of their acceleration and their sources are, however, still mostly unknown. Observing astrophysical neutrinos can help solve this problem. Because neutrinos are produced in hadronic interactions and are neither absorbed nor deflected, they will point directly back to their source. This talk will cover searches for high-energy neutrinos (> 100 TeV) at the IceCube neutrino observatory, which have recently produced the first evidence for a flux beyond standard expectations from neutrinos generated in the Earth's atmosphere. This includes the detection of several events with energies above 1 PeV -- the highest energy neutrinos ever observed. The current status of these astrophysical neutrino searches and prospects for the future will be discussed.

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